

REMARKS

I. INTRODUCTION

With the cancellation of claims 2, 7 and 8, claims 1, 3 to 6, 10 and 11 are now pending in the present application. Claims 1 and 3 have been amended. In view of the following, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. REJECTION OF CLAIMS 1 to 3, 5 to 8, 10 and 11 UNDER 35 U.S.C. § 102(b)

Claims 1 to 3, 5 to 8, 10 and 11 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,782,403 (“Wang”) and U.S. Patent No. 5,662,766 (“Ishikawa et al.”). It is respectfully submitted that Wang and Ishikawa et al. do not anticipate the present claims for at least the following reasons.

Although the rejection may not be agreed with, to simplify matters, claim 1 has been amended to recite the features of claim 2, claim 2 has been canceled, and claim 3 has been amended to change its dependency from claim 2 to claim 1. Specifically, claim 1 as amended recites, in part, that **the converter is a component dynamically balanced with respect to a center axis, the vibration conductor being laterally secured on the converter perpendicularly to the center axis.** Neither Wang, nor Ishikawa et al. disclose, or even suggest, that a vibration conductor is laterally secured on a converter perpendicularly to a center axis of the converter. Contrary to the contentions appearing at page 2, section 2, lines 11 to 12 of the Office Action, the ultrasonic transducer (30) of Wang is not connected to the lateral-to-torsional converter (34) laterally and perpendicularly to a center axis of the lateral-to-torsional converter (34), but rather end-to-end and coaxially. In addition, contrary to the contentions appearing at page 3, section 3, line 11 to page 4, line 1 of the Office Action, the longitudinal vibration horn (VH) of Ishikawa et al. is not connected to the torsional vibration horn (TH) laterally and perpendicularly to a center axis of the torsional vibration horn (TH), but rather end-to-end and coaxially.

Furthermore, the Office Action states on page 7 that:

...the orientation of the vibration conductor with respect to the converter does not influence the functions of the devices and that said components can be aligned vertically or laterally and similar operational results can be achieved.

It is respectfully submitted that this assertion is not accurate. For example, the converter (34) of Wang is designed to convert linear vibrations transmitted along a central axis (52) of the converter (34) to torsional vibrations in a plane perpendicular to the central axis (52). For this purpose, the converter (34) includes a twisted, web-like section (56). If the transducer (30) of Wang were to be connected to the converter (34) laterally and perpendicularly to the central axis (52) of the converter (34), the converter (34) would no longer convert the longitudinal vibrations of the transducer (30) to torsional vibrations in a plane parallel to the substrate (14), and hence, the device of Wang would no longer function correctly. Similarly, the torsional vibration horn (TH) of Ishikawa et al. is only designed to coaxially receive longitudinal vibrations from the longitudinal vibration horn (VH) and would not function correctly if the longitudinal vibration horn (VH) were attached to the torsional vibration horn (TH) laterally and perpendicularly to a center axis of the torsional vibration horn (TH).

Furthermore, the allegation on page 7, lines 13 to 15 of the Office Action, that the passage, "An alignment of the bonding tool with respect to the line extension of the electrical conductor is also not required according to the present invention," in Applicants' Specification supports the assertion on page 7 of the Office Action, that "...the orientation of the vibration conductor with respect to the converter does not influence the functions of the devices and that said components can be aligned vertically or laterally and similar operational results can be achieved," is also inaccurate. The former passage merely states an advantage of the bonding tool of the present invention over prior art devices that employ only linear vibrations in the plane of a substrate to bond a conductor to a substrate. Finally, the arguments presented in section 8 of the Office Action are arguments normally used in an obviousness rejection and not in an anticipation rejection. If the Examiner's aim is to reject the present claims as unpatentable over Wang, Ishikawa et al. and personal knowledge of the Examiner or alleged knowledge of one skilled in the art, then it is respectfully submitted that the rejection should be changed to an obviousness rejection and the finality of the Office Action should be withdrawn.

Further with respect to claim 1, neither Wang, nor Ishikawa et al. disclose, or even suggest, that a vibration exciter generates linear ultrasonic vibrations in a direction approximately parallel to a contact surface of a substrate. On the contrary, both references provide for linear ultrasonic vibrations to be generated in a direction perpendicular to a surface of a material to be processed. In addition, even if the assertion, "in general ultrasonic bonding devices are operable in generating linear ultrasonic vibrations in a direction approximately parallel to the contact surface of the substrate," on page 6, section 8 of the

Office Action were accurate, which is not conceded, neither Wang nor Ishikawa et al. provide support for this assertion. Thus, it is respectfully requested that the Examiner cite a reference in support of this assertion, change the rejection to an obviousness rejection, and withdraw the finality of the Office Action.

Accordingly, it is respectfully submitted that neither Wang, nor Ishikawa et al. anticipate claim 1, as amended.

As mentioned above, claim 2 has been canceled, thereby rendering moot the rejection with respect to this claim.

As for claims 3 and 5, which ultimately depend from claim 1 and therefore include all of the features recited in claim 1, it is respectfully submitted that Wang and Ishikawa et al. do not anticipate these dependent claims for at least the same reasons more fully set forth above in support of the patentability of claim 1.

As regards claim 6, neither Wang, nor Ishikawa et al. disclose, or even suggest, that an electrical conductor is fed to a bonding tool through a converter, through a feed channel. Thus, it is respectfully submitted that claim 6 is allowable.

Claims 7 and 8 have been canceled, thereby rendering moot the rejection with respect to these claims.

Claim 10 relates to a method for attaching an electrical conductor on a contact surface of a substrate, comprising: generating linear ultrasonic vibrations in a direction approximately parallel to the contact surface of the substrate; and converting the linear ultrasonic vibrations into rotary vibrations, and introducing the rotary vibrations into at least one of the contact surface and the conductor in order to produce a permanent bond between the contact surface and the conductor the rotary vibrations being incited about an axis of rotation about a bonding tool. As set forth in more detail above, neither Wang nor Ishikawa et al. disclose, or even suggest, generating linear ultrasonic vibrations in a direction approximately parallel to the contact surface of the substrate. Accordingly, it is respectfully submitted that neither Wang, nor Ishikawa et al. anticipate claim 10.

As for claim 11, which ultimately depends from claim 10 and therefore includes all of the features recited in claim 10, it is respectfully submitted that Wang and Ishikawa et al. do not anticipate this dependent claim for at least the same reasons more fully set forth above in support of the patentability of claim 10.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

III. REJECTION OF CLAIM 4 UNDER 35 U.S.C. § 103(a)

Claim 4 was rejected under 35 U.S.C. § 103(a) as unpatentable over Wang in view of U.S. Patent No. 5,733,074 ("Stöck et al."), and over Ishikawa et al. in view of Stöck et al. It is respectfully submitted that the combination of Wang and Stöck et al. and the combination of Ishikawa et al. and Stöck et al. do not render unpatentable the present claim for at least the following reasons.

Claim 4 ultimately depends from claim 1 and therefore includes all of the features of claim 1. As set forth in more detail above, neither Wang nor Ishikawa et al. disclose, or even suggest, all of the features of claim 1. In addition, Stöck et al. do not disclose, or even suggest, all of the features of claim 1 not disclosed or suggested by Wang and Ishikawa et al. Accordingly, it is respectfully submitted that the combination of Wang and Stöck et al. and the combination of Ishikawa et al. and Stöck et al. do not render unpatentable claim 4, which depends from claim 1.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

IV. CONCLUSION

In view of the foregoing, it is respectfully submitted that all of the presently pending claims are allowable. It is therefore respectfully requested that the rejections be withdrawn, since they have been obviated. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is respectfully requested.

Respectfully submitted,

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